

E85 FUEL INFORMATION

From the U.S. Department of Energy Handbook for Handling, Storing & Dispensing E85 –

“As concerns about rising gasoline prices and dependence on foreign oil increase, Americans are looking for alternative fuels like ethanol. Ethanol is better for the environment, is domestically produced, and its use supports farmers and rural communities. Ethanol is produced mainly from corn grown in the Midwest. One bushel of corn (approximately 56 pounds) produces 2.7 gallons of ethanol. Ethanol can also be produced from cheese whey, spilled beer and dated soda. Because ethanol can be produced from crops, it is classified as a renewable fuel. By switching to ethanol fuels and advanced vehicle technologies, vehicle owners are achieving both energy security and cleaner air.”

This creates problems for vehicles without the advanced vehicle technology if someone tries to use fuel with levels of ethanol higher than 10%. The fuel systems problems seen in the automotive aftermarket today are created by some misguided efforts to save a buck at the gas pump, and are actually costing the users more than they know.

Let’s look at some of the facts from the United States of America’s own Department of Energy Handbook for Handling, Storing, and Dispensing E85. The following facts are excerpts from this DOE handbook.

There are two basic types of ethanol fuels in use today: E10* and E85*.

“By definition the E10 fuel is a small amount of ethanol (10% by volume) added to the gasoline we put in our vehicles in order to fulfill federal oxygenate requirements, add octane, and greatly extend the petroleum fuel supply. E10 is a widely available vehicle fuel and can be run in vehicles with or without the Flex fuel equipment options.”

E85 fuel is a much higher concentration of ethanol (85% by volume) added to the gasoline. *“E85 fuel requires vehicles that have been specifically designed as flexible fuel vehicles (FFVs), which can run on either gasoline or E85 fuel.”*

“E85 fuel needs more fuel per pound of air than gasoline for proper combustion; therefore, E85 cannot be used in conventional vehicles” - - because non-flex fuel vehicles are not equipped to identify the ethanol content of the fuel and properly adjust the injection and ignition systems for the required stoichiometric fuel-to-air ratio. “One gallon of E85 contains 27% less energy than one gallon of gasoline.”

*** Alcohol fuel blends are designated by “E” for ethanol or “M” for methanol, followed by a number representing the percentage of alcohol (by volume) in the blend. The ethanol used in fuel blends is denatured (“poisoned” to prevent human consumption) and can contain up to 5% hydrocarbons (gasoline-like additives) before blending. Additional gasoline is added to the ethanol to make up the desired percentage in the blend. The fuel E10 is made of 10% denatured alcohol blended with 90% gasoline; E85, commonly called fuel ethanol, is made of 85% denatured ethanol blended with 15% gasoline; and E100 is 100% denatured ethanol.**

As an example, see the image of a window sticker from a 2003 Ford Explorer with Flex Fuel. If you look in the lower right-hand corner of the mileage sticker, you can see the mileage estimate drops from 15-mpg city & 21-mpg highway using gasoline to 11-mpg city & 15-mpg highway when using E85 fuel.

As with all liquid fuels, it is vitally important that proper fuel handling techniques be practiced to prevent fuel contamination. Certain materials commonly used with gasoline are totally incompatible with alcohols. When these materials (such as aluminum) come into contact with ethanol, they may dissolve in the fuel, which may damage engine parts and may result in poor vehicle driveability. Even if parts do not fail, running an ethanol-fueled vehicle with contaminated fuel may cause deposits that could eventually harm the engine.”

“Some materials become degraded by contact with fuel ethanol blends having high alcohol concentrations. Zinc, brass, lead and aluminum are sensitive metals. Terne (lead-tin-alloy)-plated steel, which is commonly used for gasoline fuel tanks, and lead-based solder are also incompatible with E85. Avoid using these metals because of the possibility of fuel contamination and potential difficulties with vehicle driveability. Nonmetallic materials that degrade when in contact with fuel ethanol include natural rubber, polyurethane, cork gasket material, leather, polyvinyl chloride (PVC) polyamides, methacrylate plastics, and certain thermo and thermo set plastics.”

“To safely and effectively operate a vehicle on E85, the vehicle must be compatible with alcohol use. Aftermarket conversion of gasoline-powered vehicles to ethanol fueled vehicles, although possible, is not recommended because of the changes in component materials necessary, the high cost, and the need for extensive engine recalibration.”

“FFVs manufactured by several major auto companies are available in the marketplace.”

For a list of FFVs available for purchase, and how to identify current FFVs by the vehicle Identification Number (VIN) visit www.e85fuel.com/e85101/flexfuelvehicles.php, or contact your automobile dealer.

For more information, visit www.carterfueldelivery.com